



**Manufacturers of PVC Foam Sheet**

**POLYBOARD**

**&**

**WOODPLUS**

## CHARACTERISTICS

THE General characteristics of POLYBOARD can be listed as follows

- Waterproof
- Insect Proof—Termites
- Good mechanical performance
- Excellent chemical resistance
- Lightweight
- Rustproof
- Durable
- Rigidity
- Good thermal insulation
- Machinable
- Hygienic
- Tough
- Non-flammable
- Printable
- Self-extinguishing
- Easily fabricated by readily available techniques and tools
- Rot proof
- Accommodates most fixing systems (screws, nut & bolts, glue)
- High quality smooth finish on both sides
- Non toxic
- Very Low water absorption
- Weatherable
- Paintable



### POLYBOARD Applications:

- Substrate for signs – easily screen printed, painted, laminated; ideal for vinyl letter application
- Exhibit and trade-show booths
- Point-of-purchase and 3D displays
- Photo mounting
- Arts and crafts
- Dimensional lettering
- Marine
- Refrigeration
- Modular Furniture Industry
- Theatre and stage sets
- Models, architectural prototypes
- Direct Wood replacement
- Any Indoor Furniture

## THICKNESS

### AVAILABLE

5MM, 6MM, 9MM,  
12MM AND 18MM  
SIZES ARE 8FT X 4FT



## **The Versatile, Closed-cell, Rigid Foam PVC Sheet for Furniture, Graphics, Display and Industrial Applications**

Suitable for a virtually unlimited range of applications, PVC is one of the oldest and most developed synthetic materials. Kapadivav Composites Is dedicated to developing PVC processing, specifically to manufacturing high-quality sheeting from rigid PVC.

POLYBOARD features a closed-cell, smooth surface with a fine cell structure. It will fit the requirements for a multitude of applications, from substrates for graphics, point-of-purchase displays and backers for channel letters to wood replacement. Experience has shown that POLYBOARD is the highest-quality PVC sheet available.

### **Characteristics and Benefits**

POLYBOARD is the product of choice for these application requirements:

- Chemical and corrosion resistance
  - Moisture resistance, low water absorption
  - Low flammability (UL-940VO) – perfect for trade shows and exhibit halls
  - Thermal and sound insulation – absorbs vibrations and oscillations
  - Matte finish that readily accepts most inks, paints and vinyls
  - Easy fabrication with most common tools
  - Bonds easily to similar and various other substrates
  - Suitable for the majority of interior applications; can be use in limited exterior applications
- POLYBOARD sheets are not harmful to human health or the environment in manufacturing, applications or disposal.

It is not recommended to laser cut POLYBOARD, as it will produce a dark side-edge during cutting.



This chapter details various methods of cutting POLYBOARD as part of processing the material into its final form. Common metal and woodworking tools and machinery can be used, depending on the specific application for the finished product.

## Cutting

Sheets of POLYBOARD up to 6 mm thick can be cut with a utility knife. To cut sheets thicker than 6 mm, band saws, table saws and panel saws can be used, as detailed later in this chapter. Power shears and guillotines can crush the edges of POLYBOARD sheets and generally produce unacceptable results.

With any cutting procedure, frictional heat can build up and produce unacceptable results on cut edges. Rough edges can also occur from cutting the POLYBOARD using inadequate support or from using worn tooling. For best results, test the machine setups and cutting processes before beginning production.

## Sawing

### Circular Saws

For POLYBOARD sheets 6mm and thicker, carbide-tipped, triple chip ground type circular saws can be used (Figure 1j). The following settings are recommended:

### Band Saws

High speed steel blades normally recommended for wood or plastic (hook type) can be used for POLYBOARD material within the following guidelines.

### Saber Saws

Rough cut type blades ground for plastics can be used on POLYBOARD sheets. Smooth metal-cutting blades, however, will not produce acceptable results.

## Drilling

POLYBOARD can be drilled with carbide-tipped bits using twist drills recommended for metals or standard wood drill bits

Removing the drill from the POLYBOARD material periodically may be necessary when drilling deeper holes so that frictional heat does not build up. Drill bits ground for normal rigid PVC will not produce acceptable results.

## Milling

POLYBOARD can be milled by using standard milling machines of various types.

# Routing

POLYBOARD material can be easily routed using multi-fluted carbide tools on standard woodworking routers. Standard tools and machines can be utilized without having to alter equipment bits. Adjust feeds and speeds as needed to achieve the best edge finish on the POLYBOARD parts.

# EDGE FINISHING

Edge finishing of POLYBOARD can be accomplished using various sanding, filing or grinding tools, such as a sander or file. Be careful to not overheat surfaces. Slight cell structure may be visible on cut edges of the POLYBOARD material.

Edge banding can be applied to cover the side, or alternatively be painted using a PU base paint.

# FORMING

POLYBOARD can easily be shaped using conventional methods, such as heat bending, pressure forming and vacuum forming. Because POLYBOARD heats and cools very quickly, the formed parts are cleanly and clearly defined, making the material excellent for sign faces and point-of-purchase displays.

# Heat Bending

POLYBOARD sheet material can be bent by using Calrods, radiant heaters, strip heaters (Figure 3a) or air-circulated ovens. Heat guns can also be used on small areas. To ensure best results, a rheostat should be used to control heating of the POLYBOARD so that the surface temperature does not exceed 300°F / 150°C



# BONDING AND ADHESIVES

## POLYBOARD to POLYBOARD or other PVC material

For bonding POLYBOARD to itself or another PVC material, a solvent-based adhesive system used for rigid non-expanded PVC (U-PVC Cement), will provide the best results. Solvent-based adhesives are sold through various suppliers. Proper ventilation and a clean working environment are essential for this type of bonding.

UPVC solvent cement is best used for bonding POLYBOARD surface-to-surface. For bonding POLYBOARD edges-to-surface or edge-to-edge it is best to use a cyanoacrylate based adhesive.

## POLYBOARD to various substrates

There are numerous types of adhesives that can be used with specific substrates. Contact, epoxy, rubber-base, cyanoacrylate, and urethane adhesive systems are all acceptable. For best results, test the selected adhesive for suitability in a particular application before general use.

If cement is applied to one surface, let the two surfaces be in gentle contact for a few seconds to allow the cement to soften the dry surface, then press parts together in firm contact.

There are many manufacturers of each type of the adhesive system in the market that sell their product under various trade-names.

# SCREWING AND NAILING

Any type of screw or nail can be used to fasten POLYBOARD material; pre-drilling is typically unnecessary. Power nailers and screw driving equipment are suggested. It is important to note that nails will un-reversibly deform the foam structure. Therefore removing and re-nailing will have a reduced performance of the fixture.

Screw ingis highly recommended for fittings and fixing POLYBOARD. Wood screws and dry wall screws with a relatively wide thread are best suited to the foam structure.



## PAINTING

POLYBOARD can be painted using conventional techniques or spray painting. Polyurethane paints are best suited for POLYBOARD as this will form a strong adhesion with the POLYBOARD surface. Although sanding is not generally required prior to painting it is recommended as it will enhance the bonding of the paint substrate to the POLYBOARD surface. Other paints such as standard oil paints and epoxy based paints can be used if the application is beyond the possibility of any day-to-day wear.

## CNC-ROUTING

Different designs can be created by engraving POLYBOARD. Please refer to the previous section for discussion on CNC-routing.

## LAMINATING

Laminating is just as easy with POLYBOARD as with other boards, if not easier. A rubber based adhesive is highly recommended to use when applying laminates to POLYBOARD.

POLYBOARD will consume upto 30%less adhesive than other panels while applying laminates, and applying adhesive to the POLYBOARD surface is much easier and quicker because of its smooth surface.

Slight roughing of the surface is recommended to increase the adhesion of the glue to the POLYBOARD surface. It is always important to follow the glue suppliers' procedure while laminating with their glue.